

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multi-layer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

FEATURES

- IEC61000-4-2 (ESD) ± 25 kV (air), ± 25 kV (contact)
- 204 Watts Peak Pulse Power per (tp=8/20 μ s)
- Low Clamping Voltage
- Low Leakage Current
- IEC 61000-4-2 Level 4 ESD protection
- JESD22-A114-B ESD Rating of class 3B per human body model

MARKING

M15

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-323	3K	7 inch

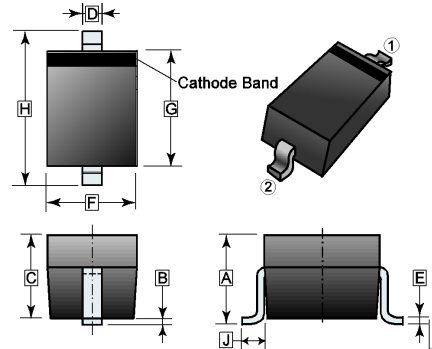
ORDER INFORMATION

Part Number	Type
SD15	Lead (Pb)-free
SD15-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
ESD Voltage(IEC61000-4-2) ¹	Air Model	V _{ESD}	± 25	kV
	Contact Model		± 25	
ESD Voltage(JESD22-A114-B) ¹	Per Human Body Model		± 16	
	Machine Model		± 0.4	
Peak Pulse Power ²		P _{PP}	204	W
Peak Pulse Current ²		I _{PP}	6	A
Maximum Lead Solder Temperature @10 second duration		T _L	260	°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	150,-55~150	°C

SOD-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.05 REF.		F	1.15	1.45
B	0.20 REF.		G	1.6	1.9
C	0.80	1.00	H	2.30	2.75
D	0.25	0.40	J	0.475 REF.	
E	0.080	0.20			



ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Reverse stand off voltage	V_{RWM}	-	-	15	V	
Reverse leakage current	I_R	-	-	1	μA	$V_{RWM}=15\text{V}$
Breakdown voltage	$V_{(BR)}$	16.7	-	20	V	$I_T=1\text{mA}$
Clamping voltage ²	V_C	-	-	34	V	$I_{PP}=6\text{A}$
Forward Voltage	V_F	-	-	0.9	V	$I_F=10\text{mA}$
Junction capacitance	C_J	-	30	-	pF	$V_R=0\text{V}, f=1\text{MHz}$

Notes:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

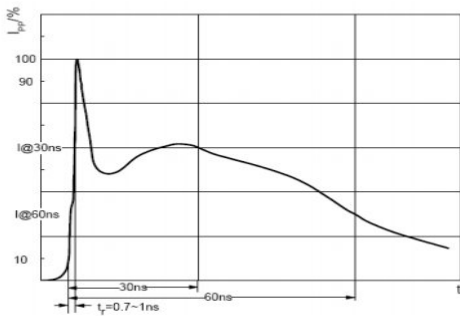
ESD STANDARDS COMPLIANCE

IEC61000-4-2 Standard

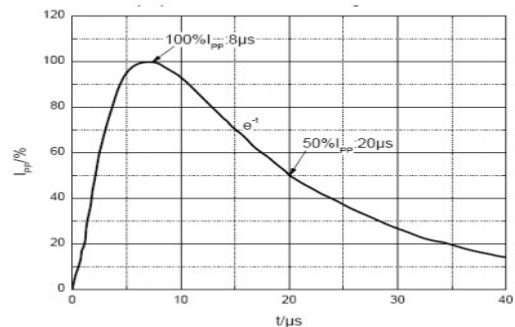
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999



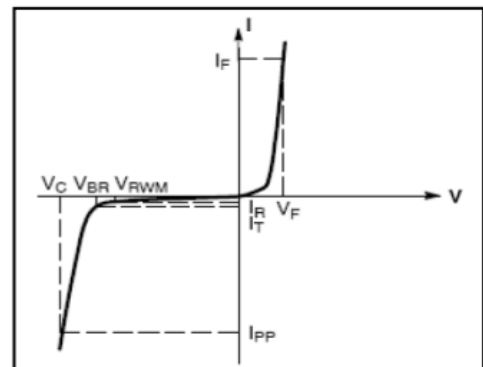
ESD pulse waveform according to IEC61000-4-2



8/20 μs pulse waveform according to IEC 61000-4-5

ELECTRICAL PARAMETER

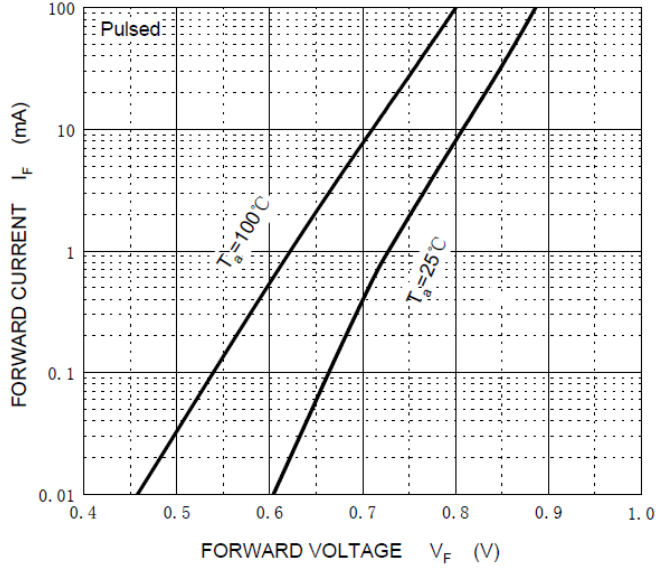
Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage
V_F	Forward Voltage @ I_F
I_F	Forward Current



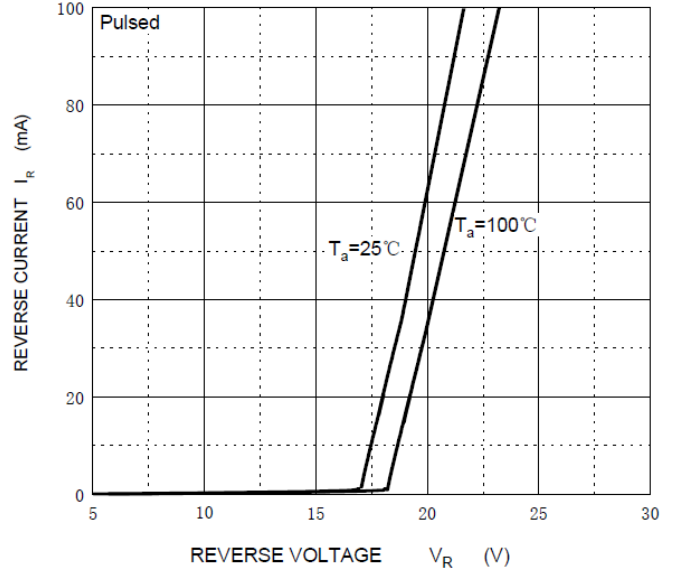
V-I characteristics for a uni-directional TVS

ELECTRICAL CHARACTERISTICS CURVE

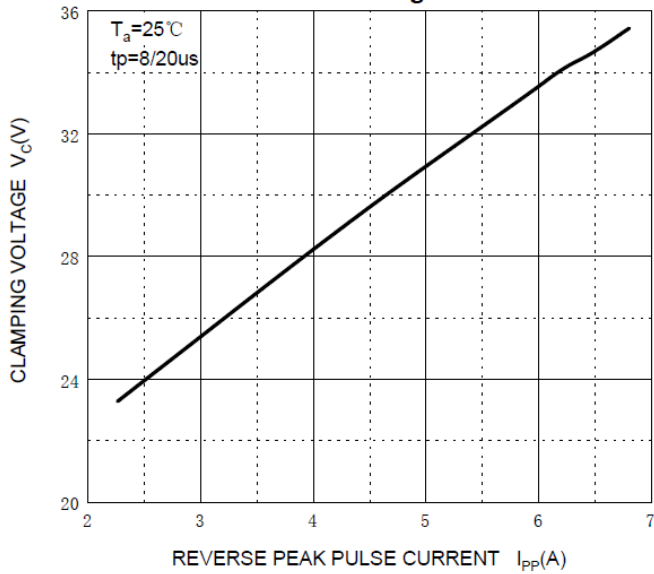
Forward Characteristics



Reverse Characteristics



Power Derating Curve



Capacitance Characteristics

